

LISTING OF CLAIMS

The claims have not been amended. The Listing of Claims is provided for the Examiner's convenience.

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of the Claims:

Claim 1 (Previously Presented): A method of charging a bulk material including fine-grained metal, metal compounds or a mixture of two or more metals or metal compounds, into an electric-arc furnace, in which the bulk material is supplied essentially continuously via at least one downpipe to one or more openings provided in the furnace roof, is introduced into the furnace through said at least one opening as a bulk material stream, and falls onto the melt merely by gravity, wherein before entering the furnace after the downpipe the bulk material stream is passed through a dosing orifice to control a material flow rate so as to maintain at least a portion of the downpipe filled with the bulk material so that the bulk material stream enters the furnace essentially undisturbed, so that the bulk material stream is not substantially enlarged during the fall onto the melt.

Claim 2 (Previously Presented): The method as claimed in claim 1, wherein after the downpipe the bulk material stream is passed through a round or oval dosing orifice.

Claim 3 (Previously Presented): The method as claimed in claim 1, wherein after the downpipe the bulk material stream is passed through an iris.

Claim 4 (Previously Presented): The method as claimed in claim 1, wherein the dosing orifice is inclined by not more than 25° with respect to the horizontal.

Claim 5 (Previously Presented): The method as claimed in claim 1, wherein the dosing orifice is arranged horizontally.

Claim 6 (Previously Presented): The method as claimed in claim 1, wherein the mass flow of the bulk material stream in the downpipe is kept larger than the throughput through the dosing orifice.

Claim 7 (Previously Presented): The method as claimed in claim 1, wherein after the dosing orifice the bulk material stream is passed through a protective tube.

Claim 8 (Previously Presented): The method as claimed in claim 7, wherein the protective tube is cooled.

Claim 9 (Previously Presented): The method as claimed in claim 1, wherein the metal, metal compound or mixture of two or more metals or metal compounds introduced into the furnace has a mean grain size of less than 1 mm.

Claim 10 (Previously Presented): An electric-arc furnace for charging with fine-grained directly reduced iron or ores, comprising a furnace roof having at least one opening, the at least one opening of the furnace roof being connected with a downpipe leading to the furnace lid from outside for supplying the material to be charged, wherein at an opening of the downpipe into the furnace an adjustable dosing orifice is configured to control a flow of the material into the furnace is provided.

Claim 11 (Previously Presented): The electric-arc furnace as claimed in claim 10, wherein the dosing orifice is an iris.

Claim 12 (Previously Presented): The electric-arc furnace as claimed in claim 10, wherein the dosing orifice has at least two slides movable with respect to each other.

Claim 13 (Previously Presented): The electric-arc furnace as claimed in claim 10, wherein the dosing orifice is inclined with respect to the horizontal by not more than 25°.

Claim 14 (Previously Presented) The electric-arc furnace as claimed in claim 10, wherein the dosing orifice is arranged horizontally.

Claim 15 (Previously Presented): The electric-arc furnace as claimed in claim 10, wherein the bulk recipient vessel constitutes a mass flow silo.

Claim 16 (Previously Presented): The electric-arc furnace as claimed in claim 10, wherein the downpipe is arranged vertically.

Claim 17 (Previously Presented): The electric-arc furnace as claimed in claim 10, wherein below the dosing orifice a preferably vertical protective tube is provided.

Claim 18 (Previously Presented): The electric-arc furnace as claimed in claim 17, wherein the length of the protective tube is about 1 to 3 times the maximum diameter of the stream of bulk material.

Claim 19 (Previously Presented): The electric-arc furnace as claimed in claim 17 wherein the protective tube is cooled.

Claim 20 (Previously Presented): The electric-arc furnace as claimed in claim 17, wherein the diameter of the protective tube is at least twice as large as the opening diameter of the dosing orifice.

Claim 21 (Previously Presented): The electric-arc furnace as claimed in claim 10, wherein the maximum opening diameter of the dosing orifice is smaller than or equal to the diameter of the downpipe.

Claim 22 (Previously Presented): A method of charging a bulk material including fine-grained metal, metal compounds or a mixture of two or more metals or metal compounds, into an electric-arc furnace, in which the bulk material is supplied essentially continuously via at least one downpipe to one or more openings provided in the furnace roof, is introduced into the furnace through said at least one opening as a bulk material stream, and falls onto the melt merely by gravity, wherein before entering the furnace after the downpipe the bulk material stream is passed through an adjustable dosing orifice to control a material flow rate so as to maintain at least a portion of the downpipe filled with the bulk material so that the bulk material stream enters the furnace essentially undisturbed, so that the bulk material stream is not substantially enlarged during the fall onto the melt.

Claim 23 (Previously Presented): The method as recited in claim 22, wherein the adjustable dosing orifice is round or oval.

Claim 24 (Previously Presented): The method as claimed in claim 22, wherein the adjustable dosing orifice is an iris.

Claim 25 (Previously Presented): The method as claimed in claim 22, wherein the adjustable dosing orifice is inclined by not more than 25° with respect to the horizontal.

Claim 26 (Previously Presented): The method as claimed in claim 22, wherein the adjustable dosing orifice is arranged horizontally.